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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Andrew J. Flint and Deborah E. Cool
Application No. : 09/788,626
Filed : February 13, 2001
For : IMPROVED ASSAY FOR PROTEIN TYROSINE PHOSPHATASE
Art Unit : 1741
Docket No. : 200125.401
Date : June 5, 2001

Box Missing Parts
Assistant Commissioner for Patents
Washington, D.C. 20231

DECLARATION

Sir:

I, Monica Steinborn, in accordance with 37 C.F.R. § 1.821(f) do hereby declare that, to the best of my knowledge, the content of the paper entitled "Sequence Listing" and the computer readable copy contained within the floppy disk are the same.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated this 5th day of June, 2001.

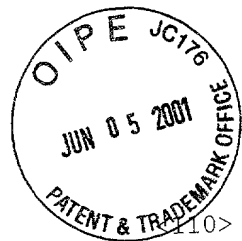
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09788626

#6



SEQUENCE LISTING

<110> Flint, Andrew J.
Cool, Deborah E.

<120> IMPROVED ASSAY FOR PROTEIN TYROSINE
PHOSPHATES

<130> 200125.401

<140> US/09/788,626

<141> 2001-02-13

<160> 40

<170> FastSEQ for Windows Version 4.0

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<211> 11

<212> PRT

<213> Artificial Sequence

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<223> Xaa = Ser or Thr

<223> Unique signature sequence motif which is invariant
among all PTPs.

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<210> 2

<211> 254

<212> PRT

095830 02983/60

<213> Homo sapiens

<400> 2

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      20           25           30
Gln Glu Asp Asn Asp Tyr Ile Asn Ala Ser Leu Ile Lys Met Glu Glu
      35           40           45
Ala Gln Arg Ser Tyr Ile Leu Thr Gln Gly Pro Leu Pro Asn Thr Cys
      50           55           60
Gly His Phe Trp Glu Met Val Trp Glu Gln Lys Ser Arg Gly Val Val
      65           70           75           80
Met Leu Asn Arg Val Met Glu Lys Gly Ser Leu Lys Cys Ala Gln Tyr
      85           90           95
Trp Pro Gln Lys Glu Glu Lys Glu Met Ile Phe Glu Asp Thr Asn Leu
      100          105          110
Lys Leu Thr Leu Ile Ser Glu Asp Ile Lys Ser Tyr Tyr Thr Val Leu
      115          120          125
Glu Leu Glu Asn Leu Thr Thr Gln Glu Thr Arg Glu Ile Leu His Phe
      130          135          140
His Tyr Thr Thr Trp Pro Asp Phe Gly Val Pro Glu Ser Pro Ala Ser
      145          150          155          160
Phe Leu Asn Phe Leu Phe Lys Val Arg Glu Ser Gly Ser Leu Ser Pro
      165          170          175
Glu His Gly Pro Val Val Val His Cys Ser Ala Gly Ile Gly Arg Ser
      180          185          190
Gly Thr Phe Cys Leu Ala Asp Thr Cys Leu Leu Leu Met Asp Lys Arg
      195          200          205
Lys Asp Pro Ser Ser Val Asp Ile Lys Lys Val Leu Leu Glu Met Arg
      210          215          220
Lys Phe Arg Met Gly Leu Ile Gln Thr Ala Asp Gln Leu Arg Phe Ser
      225          230          235          240
Tyr Leu Ala Val Ile Glu Gly Ala Lys Phe Ile Met Gly Asp
      245          250

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<210> 3

<211> 251

<212> PRT

<213> Homo sapiens

<400> 3

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      20           25           30
Ala Glu Asn Asp Tyr Ile Asn Ala Ser Leu Val Asp Ile Glu Glu Ala
      35           40           45
Gln Arg Ser Tyr Ile Leu Thr Gln Gly Pro Leu Pro Asn Thr Cys Cys
      50           55           60
His Phe Trp Leu Met Val Trp Gln Gln Lys Thr Lys Ala Val Val Met
      65           70           75           80
Leu Asn Arg Ile Val Glu Lys Glu Ser Val Lys Cys Ala Gln Tyr Trp
      85           90           95

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Pro Thr Asp Asp Gln Glu Met Leu Phe Lys Glu Thr Gly Phe Ser Val
 100 105 110
 Lys Leu Leu Ser Glu Asp Val Lys Ser Tyr Tyr Thr Val Leu Gln Leu
 115 120 125
 Glu Asn Ile Asn Ser Gly Glu Thr Arg Thr Ile Ser His Phe His Tyr
 130 135 140
 Thr Thr Trp Pro Asp Phe Gly Val Pro Glu Ser Pro Ala Ser Phe Leu
 145 150 155 160
 Asn Phe Leu Phe Lys Val Arg Glu Ser Gly Ser Leu Asn Pro Asp His
 165 170 175
 Gly Pro Ala Val Ile His Cys Ser Ala Gly Ile Gly Arg Ser Gly Thr
 180 185 190
 Phe Ser Leu Val Asp Thr Cys Leu Val Leu Met Glu Lys Gly Asp Asp
 195 200 205
 Ile Asn Ile Lys Gln Val Leu Leu Asn Met Arg Lys Tyr Arg Met Gly
 210 215 220
 Leu Ile Gln Thr Pro Asp Gln Leu Arg Phe Ser Tyr Met Ala Ile Ile
 225 230 235 240
 Glu Gly Ala Lys Cys Ile Lys Gly Asp Ser Ser
 245 250

<210> 4
 <211> 317
 <212> PRT
 <213> Homo sapiens

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 20 25 30
 Gln Leu Ala Glu Lys Asp Gly Lys Leu Thr Asp Tyr Ile Asn Ala Asn
 35 40 45
 Tyr Val Asp Gly Tyr Asn Arg Pro Lys Ala Tyr Ile Ala Ala Gln Gly
 50 55 60
 Pro Leu Lys Ser Thr Ala Glu Asp Phe Trp Arg Met Ile Trp Glu His
 65 70 75 80
 Asn Val Glu Val Ile Val Met Ile Thr Asn Leu Val Glu Lys Gly Arg
 85 90 95
 Arg Lys Cys Asp Gln Tyr Trp Pro Pro Ala Asp Gly Ser Glu Glu Tyr
 100 105 110
 Gly Asn Phe Leu Val Thr Gln Lys Ser Val Gln Val Leu Ala Tyr Tyr
 115 120 125
 Thr Val Phe Thr Leu Arg Asn Thr Lys Ile Lys Lys Gly Ser Gln Lys
 130 135 140
 Gly Arg Pro Ser Gly Arg Val Val Thr Gln Tyr His Tyr Thr Gln Trp
 145 150 155 160
 Pro Asp Met Gly Val Pro Glu Tyr Ser Leu Pro Val Leu Thr Phe Val
 165 170 175
 Arg Lys Ala Ala Tyr Ala Lys Arg His Ala Val Gly Pro Val Val Val
 180 185 190
 His Cys Ser Ala Gly Val Gly Arg Thr Gly Thr Tyr Ile Val Leu Asp
 195 200 205
 Ser Met Leu Gln Gln Ile Gln His Glu Gly Thr Val Asn Ile Phe Gly

0925030-06060

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<210> 5
<211> 316
<212> PRT
<213> Homo sapiens
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Gln	Leu	Ala	Glu 35	Lys	Asp	Gly	Lys 40	Leu	Thr	Asp	Tyr	Ile 45	Asn	Ala	Asn
Tyr	Val 50	Asp	Gly	Tyr	Asn 55	Arg	Pro	Lys	Ala	Tyr	Ile 60	Ala	Ala	Gln	Gly
Pro 65	Leu	Lys	Ser	Thr	Ala 70	Glu	Asp	Phe	Trp	Arg 75	Met	Ile	Trp	Glu	His 80
Asn	Val	Glu	Val	Ile 85	Val	Met	Ile	Thr	Asn 90	Leu	Val	Glu	Lys	Gly 95	Arg
Arg	Lys	Cys	Asp 100	Gln	Tyr	Trp	Pro	Ala 105	Asp	Gly	Ser	Glu	Glu	Tyr	Gly
Asn	Phe	Leu	Val 115	Thr	Gln	Lys	Ser	Val 120	Gln	Val	Leu	Ala	Tyr	Tyr	Thr
Val	Phe 130	Thr	Leu	Arg	Asn	Thr	Lys 135	Ile	Lys	Lys	Gly 140	Ser	Gln	Lys	Gly
Arg 145	Pro	Ser	Gly	Arg	Val 150	Val	Thr	Gln	Tyr	His 155	Tyr	Thr	Gln	Trp	Pro 160
Asp	Met	Gly	Val	Pro 165	Glu	Tyr	Ser	Leu	Pro 170	Val	Leu	Thr	Phe	Val	Arg
Lys	Ala	Ala	Tyr 180	Ala	Lys	Arg	His	Ala 185	Val	Gly	Pro	Val	Val	Val	His
Cys	Ser	Ala	Gly 195	Val	Gly	Arg	Thr 200	Gly	Thr	Tyr	Ile	Val	Leu	Asp	Ser
Met	Leu 210	Gln	Gln	Ile	Gln	His	Glu 215	Gly	Thr	Val	Asn 220	Ile	Phe	Gly	Phe
Leu 225	Lys	His	Ile	Arg	Ser	Gln	Arg 230	Asn	Tyr	Leu	Val	Gln	Thr	Glu	Glu
Gln	Tyr	Val	Phe	Ile 245	His	Asp	Thr	Leu	Val 250	Glu	Ala	Ile	Leu	Ser	Lys
Glu	Thr	Glu	Val 260	Val	Leu	Asp	Ser	Met 265	Leu	Gln	Gln	Ile	Gln	His	Glu

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<210> 6
<211> 319
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<213> Homo sapiens
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			20					25					30			
Pro	Leu	Pro	Gly	Lys	Asp	Ser	Lys	His	Ser	Asp	Tyr	Ile	Asn	Ala	Asn	
		35					40					45				
Tyr	Val	Asp	Gly	Tyr	Asn	Lys	Ala	Lys	Ala	Tyr	Ile	Ala	Thr	Gln	Gly	
	50					55					60					
Pro	Leu	Lys	Ser	Thr	Phe	Glu	Asp	Phe	Trp	Arg	Met	Ile	Trp	Glu	Gln	
65					70					75					80	
Asn	Thr	Gly	Ile	Ile	Val	Met	Ile	Thr	Asn	Leu	Val	Glu	Lys	Gly	Arg	
				85					90					95		
Arg	Lys	Cys	Asp	Gln	Tyr	Trp	Pro	Thr	Glu	Asn	Ser	Glu	Glu	Tyr	Gly	
			100					105					110			
Asn	Ile	Ile	Val	Thr	Leu	Lys	Ser	Thr	Lys	Ile	His	Ala	Cys	Tyr	Thr	
	115						120					125				
Val	Phe	Ser	Ile	Arg	Asn	Thr	Lys	Val	Lys	Lys	Gly	Gln	Lys	Gly	Asn	
	130					135					140					
Pro	Lys	Gly	Arg	Gln	Asn	Glu	Arg	Val	Val	Ile	Gln	Tyr	His	Tyr	Thr	
145					150					155					160	
Gln	Trp	Pro	Asp	Met	Gly	Val	Pro	Glu	Tyr	Ala	Leu	Pro	Val	Leu	Thr	
				165					170					175		
Phe	Val	Arg	Arg	Ser	Ser	Ala	Ala	Arg	Met	Pro	Glu	Thr	Gly	Pro	Val	
			180					185					190			
Leu	Val	His	Cys	Ser	Ala	Gly	Val	Gly	Arg	Thr	Gly	Thr	Tyr	Ile	Val	
		195					200					205				
Ile	Asp	Ser	Met	Leu	Gln	Gln	Ile	Lys	Asp	Lys	Ser	Thr	Val	Asn	Val	
	210					215					220					
Leu	Gly	Phe	Leu	Lys	His	Ile	Arg	Thr	Gln	Arg	Asn	Tyr	Leu	Val	Gln	
225					230					235					240	
Thr	Glu	Glu	Gln	Tyr	Ile	Phe	Ile	His	Asp	Ala	Leu	Leu	Glu	Ala	Ile	
				245					250					255		
Leu	Gly	Lys	Glu	Thr	Glu	Val	Val	Ile	Asp	Ser	Met	Leu	Gln	Gln	Ile	
			260					265					270			
Lys	Asp	Lys	Ser	Thr	Val	Asn	Val	Leu	Gly	Phe	Leu	Lys	His	Ile	Arg	
		275				280						285				
Thr	Gln	Arg	Asn	Tyr	Leu	Val	Gln	Thr	Glu	Glu	Gln	Tyr	Ile	Phe	Ile	
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His	Asp	Ala	Leu	Leu	Glu	Ala	Ile	Leu	Gly	Lys	Glu	Thr	Glu	Val		
305					310					315						

<210> 7
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 <212> PRT
 <213> *Drosophila melanogaster*

<400> 7

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 20 25 30
 Pro Thr Pro Gly Gln Lys Lys Asn Leu Asp Tyr Ile Asn Ala Asn Phe
 35 40 45
 Ile Asp Gly Tyr Gln Lys Gly His Ala Phe Ile Gly Thr Gln Gly Pro
 50 55 60
 Leu Pro Asp Thr Phe Asp Cys Phe Trp Arg Met Ile Trp Glu Gln Arg
 65 70 75 80
 Val Ala Ile Ile Val Met Ile Thr Asn Leu Val Glu Arg Gly Arg Arg
 85 90 95
 Lys Cys Asp Met Tyr Trp Pro Lys Asp Gly Val Glu Thr Tyr Gly Val
 100 105 110
 Ile Gln Val Lys Leu Ile Glu Glu Glu Val Met Ser Thr Tyr Thr Val
 115 120 125
 Leu Gln Ile Lys His Leu Lys Leu Lys Lys Lys Lys Gln Cys Asn Thr
 130 135 140
 Glu Lys Leu Val Tyr Gln Tyr His Tyr Thr Asn Trp Pro Asp His Gly
 145 150 155 160
 Thr Pro Asp His Pro Leu Pro Val Leu Asn Phe Val Lys Lys Ser Ser
 165 170 175
 Ala Ala Asn Pro Ala Glu Ala Gly Pro Ile Val Val His Cys Ser Ala
 180 185 190
 Gly Val Gly Arg Thr Gly Thr Tyr Ile Val Leu Asp Ala Met Leu Lys
 195 200 205
 Gln Ile Gln Gln Lys Asn Ile Val Asn Val Phe Gly Phe Leu Arg His
 210 215 220
 Ile Arg Ala Gln Arg Asn Phe Leu Val Gln Thr Glu Glu Gln Tyr Ile
 225 230 235 240
 Phe Leu His Asp Ala Leu Val Glu Ala Ile Ala Ser Gly Glu Thr Asn
 245 250 255
 Leu Val Leu Asp Ala Met Leu Lys Gln Ile Gln Gln Lys Asn Ile Val
 260 265 270
 Asn Val Phe Gly Phe Leu Arg His Ile Arg Ala Gln Arg Asn Phe Leu
 275 280 285
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 290 295 300
 Ala Ile Ala Ser Gly Glu Thr Asn Leu
 305 310

<210> 8
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 <212> PRT
 <213> *Homo sapiens*

<400> 8

Gln Phe Thr Trp Glu Asn Ser Asn Leu Glu Val Asn Lys Pro Lys Asn

09783336060604

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 20 25 30
 Ser Ile Asp Gly Val Pro Gly Ser Asp Tyr Ile Asn Ala Asn Tyr Ile
 35 40 45
 Asp Gly Tyr Arg Lys Gln Asn Ala Tyr Ile Ala Thr Gln Gly Pro Leu
 50 55 60
 Pro Glu Thr Met Gly Asp Phe Trp Arg Met Val Trp Glu Gln Arg Thr
 65 70 75 80
 Ala Thr Val Val Met Met Thr Arg Leu Glu Glu Lys Ser Arg Val Lys
 85 90 95
 Cys Asp Gln Tyr Trp Pro Ala Arg Gly Thr Glu Thr Cys Gly Leu Ile
 100 105 110
 Gln Val Thr Leu Leu Asp Thr Val Glu Leu Ala Thr Tyr Thr Val Phe
 115 120 125
 Ala Leu His Lys Ser Gly Ser Ser Glu Lys Arg Glu Leu Arg Gln Phe
 130 135 140
 Gln Phe Met Ala Trp Pro Asp His Gly Val Pro Glu Tyr Pro Thr Pro
 145 150 155 160
 Ile Leu Ala Phe Leu Arg Arg Val Lys Ala Cys Asn Pro Leu Asp Ala
 165 170 175
 Gly Pro Met Val Val His Cys Ser Ala Gly Val Gly Arg Thr Gly Cys
 180 185 190
 Phe Ile Val Ile Asp Ala Met Leu Glu Arg Met Lys His Glu Lys Thr
 195 200 205
 Val Asp Ile Tyr Gly His Val Thr Cys Met Arg Ser Gln Arg Asn Tyr
 210 215 220
 Met Val Gln Thr Glu Asp Gln Tyr Val Phe Ile His Glu Ala Leu Leu
 225 230 235 240
 Glu Ala Ala Thr Cys Gly His Thr Glu Val Val Ile Asp Ala Met Leu
 245 250 255
 Glu Arg Met Lys His Glu Lys Thr Val Asp Ile Tyr Gly His Val Thr
 260 265 270
 Cys Met Arg Ser Gln Arg Asn Tyr Met Val Gln Thr Glu Asp Gln Tyr
 275 280 285
 Val Phe Ile His Glu Ala Leu Leu Glu Ala Ala Thr Cys Gly His Thr
 290 295 300
 Glu Val
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<210> 9
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 <212> PRT
 <213> Homo sapiens

<400> 9
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 35 40 45
 Asp Gly Tyr His Arg Pro Asn His Tyr Ile Ala Thr Gln Gly Pro Met
 50 55 60

Gln Glu Thr Ile Tyr Asp Phe Trp Arg Met Val Trp His Glu Asn Thr
 65 70 75 80
 Ala Ser Ile Ile Met Val Thr Asn Leu Val Glu Val Gly Arg Val Lys
 85 90 95
 Cys Cys Lys Tyr Trp Pro Asp Asp Thr Glu Ile Tyr Lys Asp Ile Lys
 100 105 110
 Val Thr Leu Ile Glu Thr Glu Leu Leu Ala Glu Tyr Val Ile Phe Ala
 115 120 125
 Val Glu Lys Arg Gly Val His Glu Ile Arg Glu Ile Arg Gln Phe His
 130 135 140
 Phe Thr Gly Trp Pro Asp His Gly Val Pro Tyr His Ala Thr Gly Leu
 145 150 155 160
 Leu Gly Phe Val Arg Gln Val Lys Ser Lys Ser Pro Pro Ser Ala Gly
 165 170 175
 Pro Leu Val Val His Cys Ser Ala Gly Ala Gly Arg Thr Gly Cys Phe
 180 185 190
 Ile Val Ile Asp Ile Met Leu Asp Met Ala Glu Arg Glu Gly Val Val
 195 200 205
 Asp Ile Tyr Asn Cys Val Arg Glu Leu Arg Ser Arg Arg Val Asn Met
 210 215 220
 Val Gln Thr Glu Glu Gln Tyr Val Phe Ile His Asp Ala Ile Leu Glu
 225 230 235 240
 Ala Cys Leu Cys Gly Asp Thr Ser Val Val Ile Asp Ile Met Leu Asp
 245 250 255
 Met Ala Glu Arg Glu Gly Val Val Asp Ile Tyr Asn Cys Val Arg Glu
 260 265 270
 Leu Arg Ser Arg Arg Val Asn Met Val Gln Thr Glu Glu Gln Tyr Val
 275 280 285
 Phe Ile His Asp Ala Ile Leu Glu Ala Cys Leu Cys Gly Asp Thr Ser
 290 295 300
 Val
 305

<210> 10
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 <213> Homo sapiens

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 Pro Val Glu Gly Val Pro Asp Ser Asp Tyr Ile Asn Ala Ser Phe Ile
 35 40 45
 Asn Gly Tyr Gln Glu Lys Asn Lys Phe Ile Ala Ala Gln Gly Pro Lys
 50 55 60
 Glu Glu Thr Val Asn Asp Phe Trp Arg Met Ile Trp Glu Gln Asn Thr
 65 70 75 80
 Ala Thr Ile Val Met Val Thr Asn Leu Lys Glu Arg Lys Glu Cys Lys
 85 90 95
 Cys Ala Gln Tyr Trp Pro Asp Gln Gly Cys Trp Thr Tyr Gly Asn Ile
 100 105 110
 Arg Val Ser Val Glu Asp Val Thr Val Leu Val Asp Tyr Thr Val Phe

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<210> 11
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<212> PRT
<213> Homo sapiens
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			20					25					30			
Gln	Leu	Asp	Gly	Ile	Pro	Cys	Ser	Asp	Tyr	Ile	Asn	Ala	Ser	Tyr	Ile	
		35					40					45				
Asp	Gly	Tyr	Lys	Glu	Lys	Asn	Lys	Phe	Ile	Ala		Gln	Gly	Pro	Lys	
	50					55				60						
Gln	Glu	Thr	Val	Asn	Asp	Phe	Trp	Arg	Met	Val	Trp	Glu	Gln	Lys	Ser	
65					70					75					80	
Ala	Thr	Ile	Val	Met	Leu	Thr	Asn	Leu	Lys	Glu	Arg	Lys	Glu	Glu	Lys	
				85					90					95		
Cys	His	Gln	Tyr	Trp	Pro	Asp	Gln	Gly	Cys	Trp	Thr	Tyr	Gly	Asn	Ile	
			100					105					110			
Arg	Val	Cys	Val	Glu	Asp	Cys	Val	Val	Leu	Val	Asp	Tyr	Thr	Ile	Phe	
		115					120					125				
Cys	Ile	Gln	Pro	Gln	Leu	Pro	Asp	Gly	Cys	Lys	Ala	Pro	Arg	Leu	Val	
	130					135					140					
Ser	Gln	Leu	His	Phe	Thr	Ser	Trp	Pro	Asp	Phe	Gly	Val	Pro	Phe	Thr	
145					150					155					160	
Pro	Ile	Gly	Met	Leu	Lys	Phe	Leu	Lys	Lys	Val	Lys	Thr	Leu	Asn	Pro	
				165					170					175		

Val His Ala Gly Pro Ile Val Val His Cys Ser Ala Gly Val Gly Arg
 180 185 190
 Thr Gly Thr Phe Ile Val Ile Asp Ala Met Met Ala Met Met His Ala
 195 200 205
 Glu Gln Lys Val Asp Val Phe Glu Phe Val Ser Arg Ile Arg Asn Gln
 210 215 220
 Arg Pro Gln Met Val Gln Thr Asp Met Gln Tyr Thr Phe Ile Tyr Gln
 225 230 235 240
 Ala Leu Leu Glu Tyr Tyr Leu Tyr Gly Asp Thr Glu Leu Val Ile Asp
 245 250 255
 Ala Met Met Ala Met Met His Ala Glu Gln Lys Val Asp Val Phe Glu
 260 265 270
 Phe Val Ser Arg Ile Arg Asn Gln Arg Pro Gln Met Val Gln Thr Asp
 275 280 285
 Met Gln Tyr Thr Phe Ile Tyr Gln Ala Leu Leu Glu Tyr Tyr Leu Tyr
 290 295 300
 Gly Asp Thr Glu Leu
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 <212> PRT
 <213> Mus musculus

<400> 12

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 20 25 30
 Glu Ile Asn Gly Asp Ala Gly Ser Thr Tyr Ile Asn Ala Ser Tyr Ile
 35 40 45
 Asp Gly Phe Lys Glu Pro Arg Lys Tyr Ile Ala Ala Gln Gly Pro Arg
 50 55 60
 Asp Glu Thr Val Asp Asp Phe Trp Arg Met Ile Trp Glu Gln Lys Ala
 65 70 75 80
 Thr Val Ile Val Met Val Thr Arg Cys Glu Glu Gly Asn Arg Asn Lys
 85 90 95
 Cys Ala Glu Tyr Trp Pro Ser Met Glu Glu Gly Thr Arg Ala Phe Lys
 100 105 110
 Asp Ile Val Val Thr Ile Asn Asp His Lys Arg Cys Pro Asp Tyr Ile
 115 120 125
 Ile Leu Asn Val Ala His Lys Lys Glu Lys Ala Thr Gly Arg Glu Val
 130 135 140
 Thr His Ile Gln Phe Thr Ser Trp Pro Asp His Gly Val Pro Glu Asp
 145 150 155 160
 Pro His Leu Leu Leu Lys Leu Arg Arg Arg Val Asn Ala Phe Ser Asn
 165 170 175
 Phe Phe Ser Gly Pro Ile Val Val His Cys Ser Ala Gly Val Gly Arg
 180 185 190
 Thr Gly Thr Tyr Ile Gly Ile Asp Ala Met Leu Glu Gly Leu Glu Ala
 195 200 205
 Glu Gly Lys Val Asp Val Tyr Gly Tyr Val Val Lys Leu Arg Arg Gln
 210 215 220
 Arg Cys Leu Met Val Gln Val Glu Ala Gln Tyr Ile Leu Ile His Gln

09785566 060501

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<210> 13
<211> 325
<212> PRT
<213> Homo sapiens
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			20					25					30		
Asp	Gly	Asp	Pro	Asn	Glu	Pro	Val	Ser	Asp	Tyr	Ile	Asn	Ala	Asn	Ile
		35					40					45			
Ile	Met	Pro	Glu	Phe	Glu	Thr	Lys	Cys	Asn	Asn	Ser	Lys	Pro	Lys	Lys
	50					55					60				
Ser	Tyr	Ile	Ala	Thr	Gln	Gly	Cys	Leu	Gln	Asn	Thr	Val	Asn	Asp	Phe
65					70					75				80	
Trp	Arg	Met	Val	Phe	Gln	Glu	Asn	Ser	Arg	Val	Ile	Val	Met	Thr	Thr
				85					90					95	
Lys	Glu	Val	Glu	Arg	Gly	Lys	Ser	Lys	Cys	Val	Lys	Tyr	Trp	Pro	Asp
			100					105					110		
Glu	Tyr	Ala	Leu	Lys	Glu	Tyr	Gly	Val	Met	Arg	Val	Arg	Asn	Val	Lys
		115					120					125			
Glu	Ser	Ala	Ala	His	Asp	Tyr	Thr	Leu	Leu	Lys	Leu	Ser	Lys	Val	Gly
	130					135					140				
Gln	Gly	Asn	Thr	Glu	Arg	Thr	Val	Trp	Gln	Tyr	His	Phe	Arg	Thr	Trp
145					150					155				160	
Pro	Asp	His	Gly	Val	Pro	Ser	Asp	Pro	Gly	Gly	Val	Leu	Asp	Phe	Leu
				165					170					175	
Glu	Glu	Val	His	His	Lys	Gln	Glu	Ser	Ile	Met	Asp	Ala	Gly	Pro	Val
			180					185					190		
Val	Val	His	Cys	Ser	Ala	Gly	Ile	Gly	Arg	Thr	Gly	Thr	Phe	Ile	Val
		195					200					205			
Ile	Asp	Ile	Leu	Ile	Asp	Ile	Ile	Arg	Glu	Lys	Gly	Val	Asp	Cys	Asp
	210					215					220				
Ile	Asp	Val	Pro	Lys	Thr	Ile	Gln	Met	Val	Arg	Ser	Gln	Arg	Ser	Gly
225					230					235				240	
Met	Val	Gln	Thr	Glu	Ala	Gln	Tyr	Arg	Phe	Ile	Tyr	Met	Ala	Val	Gln
				245					250					255	
His	Tyr	Ile	Glu	Thr	Leu	Gln	Arg	Arg	Ile	Val	Ile	Asp	Ile	Leu	Ile
			260					265				270			
Asp	Ile	Ile	Arg	Glu	Lys	Gly	Val	Asp	Cys	Asp	Ile	Asp	Val	Pro	Lys
		275					280					285			

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<210> 14
<211> 322
<212> PRT
<213> Homo sapiens
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[illegible]

<210> 15
 <211> 310
 <212> PRT
 <213> Homo sapiens

<400> 15
 Asn Gln Ser Cys Asp Ile Ala Leu Leu Pro Glu Asn Arg Gly Lys Asn
 1 5 10 15
 Arg Tyr Asn Asn Ile Leu Pro Tyr Asp Ala Thr Arg Val Lys Leu Ser
 20 25 30
 Asn Val Asp Asp Asp Pro Cys Ser Asp Tyr Ile Asn Ala Ser Tyr Ile
 35 40 45
 Pro Gly Asn Asn Phe Arg Arg Glu Tyr Ile Val Thr Gln Gly Pro Leu
 50 55 60
 Pro Gly Thr Lys Asp Asp Phe Trp Lys Met Val Trp Glu Gln Asn Val
 65 70 75 80
 His Asn Ile Val Met Val Thr Gln Cys Val Glu Lys Gly Arg Val Lys
 85 90 95
 Cys Asp His Tyr Trp Pro Ala Asp Gln Asp Ser Leu Tyr Tyr Gly Asp
 100 105 110
 Leu Ile Leu Gln Met Leu Ser Glu Ser Val Leu Pro Glu Trp Thr Ile
 115 120 125
 Phe Lys Ile Cys Gly Glu Glu Gln Leu Asp Ala His Arg Leu Ile Arg
 130 135 140
 His Phe His Tyr Thr Val Trp Pro Asp His Gly Val Pro Glu Thr Thr
 145 150 155 160
 Gln Ser Leu Ile Gln Phe Val Arg Thr Val Arg Asp Tyr Ile Asn Arg
 165 170 175
 Ser Pro Gly Ala Gly Pro Thr Val Val His Cys Ser Ala Gly Val Gly
 180 185 190
 Arg Thr Gly Thr Phe Ile Ala Leu Asp Arg Ile Leu Gln Gln Leu Asp
 195 200 205
 Ser Lys Asp Ser Val Asp Ile Tyr Gly Ala Val His Asp Leu Arg Leu
 210 215 220
 His Arg Val His Met Val Gln Thr Glu Cys Gln Tyr Val Tyr Leu His
 225 230 235 240
 Gln Cys Val Arg Asp Val Leu Arg Ala Arg Lys Leu Arg Ser Ala Leu
 245 250 255
 Asp Arg Ile Leu Gln Gln Leu Asp Ser Lys Asp Ser Val Asp Ile Tyr
 260 265 270
 Gly Ala Val His Asp Leu Arg Leu His Arg Val His Met Val Gln Thr
 275 280 285
 Glu Cys Gln Tyr Val Tyr Leu His Gln Cys Val Arg Asp Val Leu Arg
 290 295 300
 Ala Arg Lys Leu Arg Ser
 305 310

<210> 16
 <211> 309
 <212> PRT
 <213> Drosophila melanogaster

098966050601

<400> 16

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Asp Gln Pro Cys Thr Phe Ala Asp Leu Pro Cys Asn Arg Pro Lys Asn
 1          5          10          15
Arg Phe Thr Asn Ile Leu Pro Tyr Asp His Ser Arg Phe Lys Leu Gln
          20          25          30
Pro Val Asp Asp Asp Glu Gly Ser Asp Tyr Ile Asn Ala Asn Tyr Val
          35          40          45
Pro Gly His Asn Ser Pro Arg Glu Phe Ile Val Thr Gln Gly Pro Leu
          50          55          60
His Ser Thr Arg Asp Asp Phe Trp Arg Met Cys Trp Glu Ser Asn Ser
65          70          75          80
Arg Ala Ile Val Met Leu Thr Arg Cys Phe Glu Lys Gly Arg Glu Lys
          85          90          95
Cys Asp Gln Tyr Trp Pro Asn Asp Thr Val Pro Val Phe Tyr Gly Asp
          100          105          110
Ile Lys Val Gln Ile Leu Asn Asp Ser His Tyr Ala Asp Trp Val Met
          115          120          125
Phe Met Leu Cys Arg Gly Ser Glu Gln Arg Ile Leu Arg His Phe His
          130          135          140
Phe Thr Thr Trp Pro Asp Phe Gly Val Pro Asn Pro Pro Gln Thr Leu
145          150          155          160
Val Arg Phe Val Arg Ala Phe Arg Asp Arg Ile Cys Ala Glu Gln Arg
          165          170          175
Pro Ile Val Val His Cys Ser Ala Gly Val Gly Arg Ser Gly Thr Phe
          180          185          190
Ile Thr Leu Asp Arg Ile Leu Gln Gln Ile Asn Thr Ser Asp Tyr Val
          195          200          205
Asp Ile Phe Gly Ile Val Tyr Ala Met Arg Lys Glu Arg Val Trp Met
          210          215          220
Val Gln Thr Glu Gln Gln Tyr Ile Cys Ile His Gln Cys Leu Leu Ala
225          230          235          240
Val Leu Glu Gly Lys Glu Asn Ile Val Gly Pro Thr Leu Asp Arg Ile
          245          250          255
Leu Gln Gln Ile Asn Thr Ser Asp Tyr Val Asp Ile Phe Gly Ile Val
          260          265          270
Tyr Ala Met Arg Glu Lys Arg Val Trp Met Val Gln Thr Glu Gln Gln
          275          280          285
Tyr Ile Cys Ile His Gln Cys Leu Leu Ala Val Leu Glu Gly Lys Glu
          290          295          300
Asn Ile Val Gly Pro
305

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<210> 17

<211> 313

<212> PRT

<213> Homo sapiens

<400> 17

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Ser Gln Ser Gln Met Val Ala Ser Ala Ser Glu Asn Asn Ala Lys Asn
 1          5          10          15
Arg Tyr Arg Asn Val Leu Pro Tyr Asp Trp Ser Arg Val Pro Leu Lys
          20          25          30
Pro Ile His Glu Glu Pro Gly Ser Asp Tyr Ile Asn Ala Ser Phe Met
          35          40          45

```

Pro	Gly 50	Leu	Trp	Ser	Pro	Gln 55	Glu	Phe	Ile	Ala	Thr 60	Gln	Gly	Pro	Leu
Pro 65	Gln	Thr	Val	Gly 70	Asp	Phe	Trp	Arg	Leu	Val 75	Trp	Glu	Gln	Gln	Ser 80
His	Thr	Leu	Val	Met 85	Leu	Thr	Asn	Cys	Met 90	Glu	Ala	Gly	Arg	Val 95	Lys
Cys	Glu	His	Tyr 100	Trp	Pro	Leu	Asp	Ser 105	Gln	Pro	Cys	Thr	His	Gly	His
Leu	Arg	Val 115	Thr	Leu	Val	Gly	Glu 120	Glu	Val	Met	Glu	Asn	Trp	Thr	Val
Leu 130	Leu	Leu	Leu	Gln	Val	Glu 135	Glu	Gln	Lys	Thr	Leu 140	Ser	Val	Arg	Gln
Phe 145	His	Tyr	Gln	Ala	Trp 150	Pro	Asp	His	Gly	Val 155	Pro	Ser	Ser	Pro	Asp 160
Thr	Leu	Leu	Ala	Phe 165	Trp	Arg	Met	Leu	Arg 170	Gln	Trp	Leu	Asp	Gln 175	Thr
Met	Glu	Gly	Gly 180	Pro	Pro	Ile	Val 185	His	Cys	Ser	Ala	Gly	Val 190	Gly	Arg
Thr	Gly	Thr 195	Leu	Ile	Ala	Leu	Asp 200	Val	Leu	Leu	Arg	Gln 205	Leu	Gln	Ser
Glu	Gly 210	Leu	Leu	Gly	Pro	Phe 215	Ser	Phe	Val	Arg	Lys 220	Met	Arg	Glu	Ser
Arg 225	Pro	Leu	Met	Val	Gln 230	Thr	Glu	Ala	Gln	Tyr 235	Val	Phe	Leu	His	Gln 240
Cys	Ile	Cys	Gly	Ser 245	Ser	Asn	Ser	Gln	Pro	Arg	Pro	Gln	Pro	Arg	Ala
Leu	Asp	Val	Leu 260	Leu	Arg	Gln	Leu 265	Gln	Ser	Glu	Gly	Leu	Leu	Gly	Pro
Phe	Ser	Phe 275	Val	Arg	Lys	Met	Arg 280	Glu	Ser	Arg	Pro	Leu 285	Met	Val	Gln
Thr	Glu 290	Ala	Gln	Tyr	Val	Phe 295	Leu	His	Gln	Cys	Ile 300	Cys	Gly	Ser	Ser
Asn 305	Ser	Gln	Pro	Arg	Pro	Gln 310	Pro	Arg							

<210> 18

<211> 291

<212> PRT

<213> Rattus norvegicus

<400> 18

Phe	Val	Asp	Pro	Lys	Glu	Tyr	Asp	Ile	Pro	Gly	Leu	Val	Arg	Lys	Asn
1				5					10					15	
Arg	Tyr	Lys	Thr	Ile	Leu	Pro	Asn	Pro	His	Ser	Arg	Val	Arg	Leu	Thr
			20					25					30		
Ser	Pro	Asp	Pro	Glu	Asp	Pro	Leu	Ser	Ser	Tyr	Ile	Asn	Ala	Asn	Tyr
		35					40					45			
Ile	Arg	Gly	Tyr	Asn	Gly	Glu	Glu	Lys	Val	Tyr	Ile	Ala	Thr	Gln	Gly
	50				55						60				
Pro	Ile	Val	Ser	Thr	Val	Val	Asp	Phe	Trp	Arg	Met	Val	Trp	Gln	Glu
65					70					75					80
Arg	Thr	Pro	Ile	Ile	Val	Met	Ile	Thr	Asn	Ile	Glu	Glu	Met	Asn	Glu
				85					90					95	
Lys	Cys	Thr	Glu	Tyr	Trp	Pro	Glu	Glu	Gln	Val	Val	His	Asp	Gly	Val


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<210> 19
<211> 313
<212> PRT
<213> Drosophila melanogaster
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<400>	19															
Asp	Arg	Thr	Thr	Lys	Asn	Ser	Asp	Leu	Lys	Glu	Asn	Ala	Cys	Lys	Asn	
1				5					10					15		
Arg	Tyr	Pro	Asp	Ile	Lys	Ala	Tyr	Asp	Gln	Thr	Arg	Val	Lys	Leu	Ala	
			20					25					30			
Val	Ile	Asn	Gly	Leu	Gln	Thr	Thr	Asp	Tyr	Ile	Asn	Ala	Asn	Phe	Val	
			35				40					45				
Ile	Gly	Tyr	Lys	Glu	Arg	Lys	Lys	Phe	Ile	Cys	Ala	Gln	Gly	Pro	Met	
	50					55					60					
Glu	Ser	Thr	Ile	Asp	Asp	Phe	Trp	Arg	Met	Ile	Trp	Glu	Gln	His	Leu	
65					70					75					80	
Glu	Ile	Ile	Val	Ile	Leu	Thr	Asn	Leu	Glu	Glu	Tyr	Asn	Lys	Ala	Lys	
				85					90					95		
Cys	Ala	Lys	Tyr	Trp	Pro	Glu	Lys	Val	Phe	Asp	Thr	Lys	Gln	Phe	Gly	
			100					105					110			
Asp	Ile	Leu	Val	Lys	Phe	Ala	Gln	Glu	Arg	Lys	Thr	Gly	Asp	Tyr	Ile	
			115				120					125				
Glu	Leu	Asn	Val	Ser	Lys	Asn	Lys	Ala	Asn	Val	Gly	Glu	Glu	Glu	Asp	
	130					135					140					
Arg	Arg	Gln	Ile	Thr	Gln	Tyr	His	Tyr	Leu	Thr	Trp	Lys	Asp	Phe	Met	
145					150					155					160	
Ala	Pro	Glu	His	Pro	His	Gly	Ile	Ile	Lys	Phe	Ile	Arg	Gln	Ile	Asn	
				165					170					175		

Gln Thr Lys Glu Gln Tyr Glu Leu Val His Arg Ala Ile Ala Gln Leu
 290 295 300
 Phe Glu Lys Gln Leu Gln Leu Tyr
 305 310

<210> 22
 <211> 291
 <212> PRT
 <213> Homo sapiens

<400> 22
 Gly Leu Ala Ile Thr Phe Ala Lys Leu Pro Gln Asn Leu Asp Lys Asn
 1 5 10 15
 Arg Tyr Lys Asp Val Leu Pro Tyr Asp Thr Thr Arg Val Leu Gln
 20 25 30
 Gly Asn Glu Asp Tyr Ile Asn Ala Ser Tyr Val Asn Met Glu Ile Pro
 35 40 45
 Ala Ala Asn Leu Val Asn Lys Tyr Ile Ala Thr Gln Gly Pro Leu Pro
 50 55 60
 His Thr Cys Ala Gln Phe Trp Gln Val Val Trp Asp Gln Lys Leu Ser
 65 70 75 80
 Leu Ile Val Met Leu Thr Thr Leu Thr Glu Arg Gly Arg Thr Lys Cys
 85 90 95
 His Gln Tyr Trp Pro Asp Pro Pro Asp Val Met Asn His Gly Gly Phe
 100 105 110
 His Ile Gln Cys Gln Ser Glu Asp Cys Thr Ile Ala Tyr Val Ser Met
 115 120 125
 Leu Val Thr Asn Thr Gln Thr Gly Glu Glu His Thr Val Thr His Leu
 130 135 140
 Gln Tyr Val Ala Trp Pro Asp His Gly Ile Pro Asp Asp Ser Ser Asp
 145 150 155 160
 Phe Leu Glu Phe Val Asn Tyr Val Arg Ser Leu Arg Val Asp Ser Glu
 165 170 175
 Pro Val Leu Val His Cys Ser Ala Gly Ile Gly Arg Thr Gly Val Leu
 180 185 190
 Val Thr Met Glu Thr Ala Met Cys Leu Thr Glu Arg Asn Leu Pro Ile
 195 200 205
 Tyr Pro Leu Asp Ile Val Arg Lys Met Arg Asp Gln Arg Ala Met Met
 210 215 220
 Val Gln Thr Ser Ser Gln Tyr Lys Phe Val Cys Glu Ala Ile Leu Arg
 225 230 235 240
 Val Tyr Thr Met Glu Thr Ala Met Cys Leu Thr Glu Arg Asn Leu Pro
 245 250 255
 Ile Tyr Pro Leu Asp Ile Val Arg Lys Met Arg Asp Gln Arg Ala Met
 260 265 270
 Met Val Gln Thr Ser Ser Gln Tyr Lys Phe Val Cys Glu Ala Ile Leu
 275 280 285
 Arg Val Tyr
 290

<210> 23
 <211> 341
 <212> PRT
 <213> Dictyostelium discoideum

<400> 23

Pro Ser Glu Thr Ser Glu Gly Asp Lys Lys His Asn Thr Ser Lys Asn
 1 5 10 15
 Arg Tyr Thr Asn Ile Leu Pro Val Asn His Thr Arg Val Gln Leu Lys
 20 25 30
 Lys Ile Gln Asp Lys Glu Gly Ser Asp Tyr Ile Asn Ala Asn Tyr Ile
 35 40 45
 Asp Gly Ala Tyr Pro Lys Gln Phe Ile Cys Thr Gln Gly Pro Leu Pro
 50 55 60
 Asn Thr Ile Ala Asp Phe Trp Arg Met Val Trp Glu Asn Arg Cys Arg
 65 70 75 80
 Ile Ile Val Met Leu Ser Arg Glu Ser Glu Gly Ser Glu Asn Cys Arg
 85 90 95
 Ile Lys Cys Asp Arg Tyr Trp Pro Glu Gln Ile Gly Gly Glu Gln Phe
 100 105 110
 Ser Ile Tyr Gly Asn Gly Asn Glu Val Phe Gly Thr Tyr Ser Val Glu
 115 120 125
 Leu Val Glu Val Ile Gln Cys Arg Glu Ile Ile Thr Arg Asn Ile Arg
 130 135 140
 Leu Thr Phe Glu Gly Glu Thr Arg Asp Ile Thr Gln Tyr Gln Tyr Glu
 145 150 155 160
 Gly Trp Pro Asp His Asn Ile Pro Asp His Thr Gln Pro Phe Arg Gln
 165 170 175
 Leu Leu His Ser Ile Thr Asn Arg Gln Asn Gln Ile Ile Pro Ser Ser
 180 185 190
 Asp Arg Asn Val Pro Ile Ile Val His Cys Ser Ala Gly Val Gly Arg
 195 200 205
 Thr Gly Thr Phe Cys Thr Ala Val Ile Met Met Lys Lys Leu Asp His
 210 215 220
 Tyr Phe Lys Gln Leu Asp Tyr Asn Ser Arg Ile Asp Phe Asn Leu Phe
 225 230 235 240
 Ser Ile Val Leu Lys Leu Arg Glu Gln Arg Pro Gly Met Val Gln Gln
 245 250 255
 Leu Glu Gln Tyr Leu Phe Cys Tyr Lys Thr Ile Leu Asp Glu Ile Tyr
 260 265 270
 His Arg Leu Asn Cys Thr Ala Val Ile Met Met Lys Lys Leu Asp His
 275 280 285
 Tyr Phe Lys Gln Leu Asp Tyr Asn Ser Arg Ile Asp Phe Asn Leu Phe
 290 295 300
 Ser Ile Val Leu Lys Leu Arg Glu Gln Arg Pro Gly Met Val Gln Gln
 305 310 315 320
 Leu Glu Gln Tyr Leu Phe Cys Tyr Lys Thr Ile Leu Asp Glu Ile Tyr
 325 330 335
 His Arg Leu Asn Cys
 340

<210> 24

<211> 312

<212> PRT

<213> Schizosaccaromyces pombe

<400> 24

Gln Trp Ser Thr Val Asp Ser Leu Ser Asn Thr Ser Tyr Lys Lys Asn

1 5 10 15
 Arg Tyr Thr Asp Ile Val Pro Tyr Asn Cys Thr Arg Val His Leu Lys
 20 25 30
 Arg Thr Ser Pro Ser Glu Leu Asp Tyr Ile Asn Ala Ser Phe Ile Lys
 35 40 45
 Thr Glu Thr Ser Asn Tyr Ile Ala Cys Gln Gly Ser Ile Ser Arg Ser
 50 55 60
 Ile Ser Asp Phe Trp His Met Val Trp Asp Asn Val Glu Asn Ile Gly
 65 70 75 80
 Thr Ile Val Met Leu Gly Ser Leu Phe Glu Ala Gly Arg Glu Met Cys
 85 90 95
 Thr Ala Tyr Trp Pro Ser Asn Gly Ile Gly Asp Lys Gln Val Tyr Gly
 100 105 110
 Asp Tyr Cys Val Lys Gln Ile Ser Glu Glu Asn Val Asp Asn Ser Arg
 115 120 125
 Phe Ile Leu Phe Glu Ile Gln Asn Ala Asn Phe Pro Ser Val Lys Lys
 130 135 140
 Val His His Tyr Gln Tyr Pro Asn Trp Ser Asp Cys Asn Ser Pro Glu
 145 150 155 160
 Asn Val Lys Ser Met Val Glu Phe Leu Lys Tyr Val Asn Asn Ser His
 165 170 175
 Gly Ser Gly Asn Thr Ile Val His Cys Ser Ala Gly Val Gly Arg Thr
 180 185 190
 Gly Thr Phe Ile Val Leu Asp Thr Ile Leu Arg Phe Pro Glu Ser Lys
 195 200 205
 Leu Ser Gly Phe Asn Pro Ser Val Ala Asp Ser Ser Asp Val Val Phe
 210 215 220
 Gln Leu Val Asp His Ile Arg Lys Gln Arg Met Lys Met Val Gln Thr
 225 230 235 240
 Phe Thr Gln Phe Lys Tyr Val Tyr Asp Leu Ile Asp Ser Leu Val Leu
 245 250 255
 Asp Thr Ile Leu Arg Phe Pro Glu Ser Lys Leu Ser Gly Phe Asn Pro
 260 265 270
 Ser Val Ala Asp Ser Ser Asp Val Val Phe Gln Leu Val Asp His Ile
 275 280 285
 Arg Lys Gln Arg Met Lys Met Val Gln Thr Phe Thr Gln Phe Lys Tyr
 290 295 300
 Val Tyr Asp Leu Ile Asp Ser Leu
 305 310

<210> 25

<211> 307

<212> PRT

<213> Schizosaccaromyces pombe

<400> 25

Trp Cys Cys Leu Ala Ser Ser Arg Ser Thr Ser Ile Ser Arg Lys Asn
 1 5 10 15
 Arg Tyr Thr Asp Ile Val Pro Tyr Asp Lys Thr Arg Val Arg Leu Ala
 20 25 30
 Val Pro Lys Gly Cys Ser Asp Tyr Ile Asn Ala Ser His Ile Asp Val
 35 40 45
 Gly Asn Lys Lys Tyr Ile Ala Cys Gln Ala Pro Lys Pro Gly Thr Leu
 50 55 60

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<210> 26
<211> 316
<212> PRT
<213> Homo sapiens
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<400> 26																
Gly	Ile	Thr	Ala	Asp	Ser	Ser	Asn	His	Pro	Asp	Asn	Lys	His	Lys	Asn	
1				5					10					15		
Arg	Tyr	Ile	Asn	Ile	Val	Ala	Tyr	Asp	His	Ser	Arg	Val	Lys	Leu	Ala	
			20					25					30			
Gln	Leu	Ala	Glu	Lys	Asp	Gly	Lys	Leu	Thr	Asp	Tyr	Ile	Asn	Ala	Asn	
		35					40					45				
Tyr	Val	Asp	Gly	Tyr	Asn	Arg	Pro	Lys	Ala	Tyr	Ile	Ala	Ala	Gln	Gly	
	50					55					60					
Pro	Leu	Lys	Ser	Thr	Ala	Glu	Asp	Phe	Trp	Arg	Met	Ile	Trp	Glu	His	
65					70					75				80		
Asn	Val	Glu	Val	Ile	Val	Met	Ile	Thr	Asn	Leu	Val	Glu	Lys	Gly	Arg	
				85					90					95		
Arg	Lys	Cys	Asp	Gln	Tyr	Trp	Pro	Ala	Asp	Gly	Ser	Glu	Glu	Tyr	Gly	
			100					105					110			
Asn	Phe	Leu	Val	Thr	Gln	Lys	Ser	Val	Gln	Val	Leu	Ala	Tyr	Tyr	Thr	

115 120 125
 Val Phe Thr Leu Arg Asn Thr Lys Ile Lys Lys Gly Ser Gln Lys Gly
 130 135 140
 Arg Pro Ser Gly Arg Val Val Thr Gln Tyr His Tyr Thr Gln Trp Pro
 145 150 155 160
 Asp Met Gly Val Pro Glu Tyr Ser Leu Pro Val Leu Thr Phe Val Arg
 165 170 175
 Lys Ala Ala Tyr Ala Lys Arg His Ala Val Gly Pro Val Val Val His
 180 185 190
 Cys Ser Ala Gly Val Gly Arg Thr Gly Thr Tyr Ile Val Leu Asp Ser
 195 200 205
 Met Leu Gln Gln Ile Gln His Glu Gly Thr Val Asn Ile Phe Gly Phe
 210 215 220
 Leu Lys His Ile Arg Ser Gln Arg Asn Tyr Leu Val Gln Thr Glu Glu
 225 230 235 240
 Gln Tyr Val Phe Ile His Asp Thr Leu Val Glu Ala Ile Leu Ser Lys
 245 250 255
 Glu Thr Glu Val Val Leu Asp Ser Met Leu Gln Gln Ile Gln His Glu
 260 265 270
 Gly Thr Val Asn Ile Phe Gly Phe Leu Lys His Ile Arg Ser Gln Arg
 275 280 285
 Asn Tyr Leu Val Gln Thr Glu Glu Gln Tyr Val Phe Ile His Asp Thr
 290 295 300
 Leu Val Glu Ala Ile Leu Ser Lys Glu Thr Glu Val
 305 310 315

<210> 27
 <211> 294
 <212> PRT
 <213> Homo sapiens

<400> 27

Thr Ser Arg Phe Ile Ser Ala Asn Leu Pro Cys Asn Lys Phe Lys Asn
 1 5 10 15
 Arg Leu Val Asn Ile Met Pro Tyr Glu Leu Thr Arg Val Cys Leu Gln
 20 25 30
 Pro Ile Arg Gly Val Glu Gly Ser Asp Tyr Ile Asn Ala Ser Phe Leu
 35 40 45
 Asp Gly Tyr Arg Gln Gln Lys Ala Tyr Ile Ala Thr Gln Gly Pro Leu
 50 55 60
 Ala Glu Ser Thr Glu Asp Phe Trp Arg Met Leu Trp Glu His Asn Ser
 65 70 75 80
 Thr Ile Ile Val Met Leu Thr Lys Leu Arg Glu Met Gly Arg Glu Lys
 85 90 95
 Cys His Gln Tyr Trp Pro Ala Glu Arg Ser Ala Arg Tyr Gln Tyr Phe
 100 105 110
 Val Val Asp Pro Met Ala Glu Tyr Asn Met Pro Gln Tyr Ile Leu Phe
 115 120 125
 Lys Val Thr Asp Ala Arg Asp Gly Gln Ser Arg Thr Ile Arg Gln Phe
 130 135 140
 Gln Phe Thr Asp Trp Pro Glu Gln Gly Val Pro Lys Thr Gly Glu Gly
 145 150 155 160
 Phe Ile Asp Phe Ile Gly Gln Val His Lys Thr Lys Glu Gln Phe Gly
 165 170 175


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<210> 28
<211> 281
<212> PRT
<213> Homo sapiens
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<400> 28																
Asn 1	Asp	Lys	Met	Arg 5	Thr	Gly	Asn	Leu	Pro 10	Ala	Asn	Met	Lys	Lys 15	Asn	
Arg	Val	Leu	Gln 20	Ile	Ile	Pro	Tyr	Glu 25	Phe	Asn	Arg	Val	Ile 30	Ile	Pro	
Val	Lys	Arg 35	Gly	Glu	Asn	Asp 40	Lys	Met	Arg	Thr	Gly	Asn 45	Leu	Pro	Ala	
Asn 50	Met	Lys	Lys	Asn	Arg	Val 55	Leu	Gln	Ile	Ile	Pro 60	Tyr	Glu	Phe	Asn	
Arg 65	Val	Ile	Ile	Pro 70	Val	Lys	Arg	Gly	Glu 75	Glu	Asn	Thr	Asp	Tyr	Val 80	
Asn	Ala	Ser	Phe 85	Ile	Asp	Gly	Tyr	Arg	Gln 90	Lys	Asp	Ser	Tyr 95	Ile	Ala	
Ser	Gln	Gly 100	Pro	Leu	Leu	His	Thr 105	Ile	Glu	Asp	Phe	Trp	Arg 110	Met	Ile	
Trp	Glu	Trp 115	Lys	Ser	Cys	Ser	Ile 120	Val	Met	Leu	Thr	Glu 125	Leu	Glu	Glu	
Arg 130	Gly	Gln	Glu	Lys	Cys	Ala 135	Gln	Tyr	Trp	Pro	Ser 140	Asp	Gly	Leu	Val	
Ser 145	Tyr	Gly	Asp	Ile 150	Thr	Val	Glu	Leu	Lys	Lys 155	Glu	Glu	Glu	Cys	Glu 160	
Ser	Tyr	Thr	Val 165	Leu	Leu	Val	Thr	Asn 170	Thr	Arg	Glu	Asn	Lys 175	Ser	Arg	
Gln	Ile	Arg 180	Gln	Phe	His	Phe	His 185	Gly	Trp	Pro	Glu	Val 190	Gly	Ile	Pro	
Ser	Asp 195	Gly	Lys	Gly	Met	Ile 200	Ser	Ile	Ile	Ala	Ala 205	Val	Gln	Lys	Gln	
Gln 210	Gln	Gln	Ser	Gly	Asn	His 215	Pro	Ile	Thr	Val	His 220	Cys	Ser	Ala	Gly	
Ala 225	Gly	Arg	Thr	Gly 230	Thr	Phe	Cys	Ala	Leu	Ser 235	Thr	Val	Leu	Glu	Arg 240	
Val	Lys	Ala	Glu	Gly	Ile	Leu	Asp	Val	Phe	Gln	Thr	Val	Lys	Ser	Leu	

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<210> 29
<211> 298
<212> PRT
<213> Homo sapiens
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```
<210> 30
<211> 301
<212> PRT
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<213> Homo sapiens

<400> 30

Val Glu Asp Cys Ser Ile Ala Leu Leu Pro Arg Asn His Glu Lys Asn
 1 5 10 15
 Arg Cys Met Asp Ile Leu Pro Pro Asp Arg Cys Leu Pro Phe Leu Ile
 20 25 30
 Thr Ile Asp Gly Glu Ser Ser Asn Tyr Ile Asn Ala Ala Leu Met Asp
 35 40 45
 Ser Tyr Lys Gln Pro Ser Ala Phe Ile Val Thr Gln His Pro Leu Pro
 50 55 60
 Asn Thr Val Lys Asp Phe Trp Arg Leu Val Leu Asp Tyr His Cys Thr
 65 70 75 80
 Ser Val Val Met Leu Asn Asp Val Asp Pro Ala Gln Leu Cys Pro Gln
 85 90 95
 Tyr Trp Pro Glu Asn Gly Val His Arg His Gly Pro Ile Gln Val Glu
 100 105 110
 Phe Val Ser Ala Asp Leu Glu Glu Asp Ile Ile Ser Phe Arg Ile Tyr
 115 120 125
 Asn Ala Ala Arg Pro Gln Asp Gly Tyr Arg Met Val Gln Gln Phe Gln
 130 135 140
 Phe Leu Gly Trp Pro Met Tyr Arg Asp Thr Pro Val Ser Lys Arg Ser
 145 150 155 160
 Phe Leu Lys Leu Ile Arg Gln Val Asp Lys Trp Gln Glu Glu Tyr Asn
 165 170 175
 Gly Gly Glu Gly Pro Thr Val Val His Cys Leu Asn Gly Gly Gly Arg
 180 185 190
 Ser Gly Thr Phe Cys Ala Ile Ser Ile Val Cys Glu Met Leu Arg His
 195 200 205
 Gln Arg Thr Val Asp Val Phe His Ala Val Lys Thr Leu Arg Asn Asn
 210 215 220
 Lys Pro Asn Met Val Asp Leu Leu Asp Gln Tyr Lys Phe Cys Tyr Glu
 225 230 235 240
 Val Ala Leu Glu Tyr Leu Asn Ser Gly Ala Ile Ser Ile Val Cys Glu
 245 250 255
 Met Leu Arg His Gly Arg Thr Val Asp Val Phe His Ala Val Lys Thr
 260 265 270
 Leu Arg Asn Asn Lys Pro Asn Met Val Asp Leu Leu Asp Gln Tyr Lys
 275 280 285
 Phe Cys Tyr Glu Val Ala Leu Glu Tyr Leu Asn Ser Gly
 290 295 300

<210> 31

<211> 333

<212> PRT

<213> Mus musculus

<400> 31

Trp Arg Thr Gln His Ile Gly Asn Gln Glu Glu Asn Lys Lys Lys Asn
 1 5 10 15
 Arg Asn Ser Asn Val Val Pro Tyr Asp Phe Asn Arg Val Pro Leu Lys
 20 25 30
 His Glu Leu Glu Met Ser Lys Glu Ser Glu Pro Glu Ser Asp Glu Ser
 35 40 45

T00000' 3233' 60

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<210> 32
<211> 295
<212> PRT
<213> Drosophila melanogaster
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<400> 32																
Ser	Lys	Ser	Cys	Ser	Val	Gly	Glu	Asn	Glu	Glu	Asn	Asn	Met	Lys	Asn	
1				5					10					15		
Arg	Ser	Gln	Glu	Ile	Ile	Pro	Tyr	Asp	Arg	Asn	Arg	Val	Ile	Leu	Thr	
			20					25					30			
Pro	Leu	Pro	Met	Arg	Glu	Asn	Ser	Thr	Tyr	Ile	Asn	Ala	Ser	Phe	Ile	
		35				40						45				
Glu	Gly	Tyr	Asp	Asn	Ser	Glu	Thr	Phe	Ile	Ile	Ala	Gln	Asp	Pro	Phe	
	50					55					60					
Glu	Asn	Thr	Ile	Gly	Asp	Phe	Trp	Arg	Met	Ile	Ser	Glu	Gln	Ser	Val	
65				70						75					80	
Thr	Thr	Leu	Val	Met	Ile	Ser	Glu	Ile	Gly	Asp	Gly	Pro	Arg	Lys	Cys	

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<210> 33
<211> 308
<212> PRT
<213> Homo sapiens
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Gln 1	Ser	Asp	Tyr	Ser 5	Ala	Ala	Leu	Lys	Gln 10	Cys	Asn	Arg	Glu	Lys 15	Asn	
Arg	Thr	Ser	Ser	Ile	Ile	Pro	Val	Glu	Arg	Ser	Arg	Val	Gly	Ile	Ser	
			20					25					30			
Ser	Leu	Ser	Gly	Glu	Gly	Thr	Asp	Tyr	Ile	Asn	Ala	Ser	Tyr	Ile	Met	
			35				40					45				
Gly	Tyr	Tyr	Gln	Ser	Asn	Glu	Phe	Ile	Ile	Thr	Gln	His	Pro	Leu	Leu	
	50					55					60					
His	Thr	Ile	Lys	Asp	Phe	Trp	Arg	Met	Ile	Trp	Asp	His	Asn	Ala	Gln	
65					70					75					80	
Leu	Val	Val	Met	Ile	Pro	Asp	Gly	Gln	Asn	Met	Ala	Glu	Asp	Glu	Phe	
				85					90					95		
Val	Tyr	Trp	Pro	Asn	Lys	Asp	Glu	Pro	Ile	Asn	Cys	Glu	Ser	Phe	Lys	
			100					105					110			
Val	Thr	Leu	Met	Ala	Glu	Glu	His	Lys	Cys	Leu	Ser	Asn	Glu	Glu	Lys	
			115				120					125				
Leu	Ile	Ile	Phe	Ile	Leu	Glu	Ala	Thr	Gln	Asp	Asp	Tyr	Val	Leu	Glu	
	130					135					140					
Val	Arg	His	Phe	Gln	Cys	Pro	Lys	Trp	Pro	Asn	Pro	Asp	Ser	Pro	Ile	
145					150					155					160	

Ser Lys Thr Phe Glu Leu Ile Ser Val Ile Lys Glu Glu Ala Ala Asn
 165 170 175
 Arg Asp Gly Pro Met Ile Val His Asp Glu His Gly Gly Val Thr Ala
 180 185 190
 Gly Thr Phe Cys Ala Leu Thr Thr Leu Met His Gln Leu Glu Lys Glu
 195 200 205
 Asn Ser Val Asp Val Tyr Gln Val Ala Lys Met Ile Asn Leu Met Arg
 210 215 220
 Pro Gly Val Phe Ala Asp Ile Glu Gln Tyr Gln Phe Leu Tyr Lys Val
 225 230 235 240
 Ile Leu Ser Leu Val Ser Thr Arg Gln Glu Glu Asn Ala Leu Thr Thr
 245 250 255
 Leu Met His Gln Leu Glu Lys Glu Asn Ser Val Asp Val Tyr Gln Val
 260 265 270
 Ala Lys Met Ile Asn Leu Met Arg Pro Gly Val Phe Ala Asp Ile Glu
 275 280 285
 Gln Tyr Gln Phe Leu Tyr Lys Val Ile Leu Ser Leu Val Ser Thr Arg
 290 295 300
 Gln Glu Glu Asn
 305

<210> 34
 <211> 308
 <212> PRT
 <213> Homo sapiens

<400> 34
 Val Glu Cys Phe Ser Ala Gln Lys Glu Cys Asn Lys Glu Lys Asn Arg
 1 5 10 15
 Asn Ser Ser Val Val Pro Ser Glu Arg Ala Arg Val Gly Leu Ala Pro
 20 25 30
 Leu Pro Gly Met Lys Gly Thr Asp Tyr Ile Asn Ala Ser Tyr Ile Met
 35 40 45
 Gly Tyr Tyr Arg Ser Asn Glu Phe Ile Ile Thr Gln His Pro Leu Pro
 50 55 60
 His Thr Thr Lys Asp Phe Trp Arg Met Ile Trp Asp His Asn Ala Gln
 65 70 75 80
 Ile Ile Val Met Leu Pro Asp Asn Gln Ser Leu Ala Glu Asp Glu Phe
 85 90 95
 Val Tyr Trp Pro Ser Arg Glu Glu Ser Met Asn Cys Glu Ala Phe Thr
 100 105 110
 Val Thr Leu Ile Ser Lys Asp Arg Leu Cys Leu Ser Asn Glu Glu Gln
 115 120 125
 Ile Ile Ile Phe Ile Leu Glu Ala Thr Gln Asp Asp Tyr Val Leu Glu
 130 135 140
 Val Arg His Phe Gln Cys Pro Lys Trp Pro Asn Pro Asp Ala Pro Ile
 145 150 155 160
 Ser Ser Thr Phe Glu Leu Ile Asn Val Ile Lys Glu Glu Ala Leu Thr
 165 170 175
 Arg Asp Gly Pro Thr Ile Val His Asp Glu Tyr Gly Ala Val Ser Ala
 180 185 190
 Gly Met Leu Cys Ala Leu Thr Thr Leu Ser Gln Gln Leu Glu Asn Glu
 195 200 205
 Asn Ala Val Asp Val Phe Gln Val Ala Lys Met Ile Asn Leu Met Arg

210		215		220
Pro Gly Val Phe Thr Asp	Ile Glu Gln Tyr Gln	Phe Ile Tyr Lys Ala		
225	230	235	240	
Met Leu Ser Leu Val Ser Thr Lys Glu Asn Gly Asn Ala Leu Thr Thr				
	245	250	255	
Leu Ser Gln Gln Leu Glu Asn Glu Asn Ala Val Asp Val Phe Gln Val				
	260	265	270	
Ala Lys Met Ile Asn Leu Met Arg Pro Gly Val Phe Thr Asp Ile Glu				
	275	280	285	
Gln Tyr Gln Phe Ile Tyr Lys Ala Met Leu Ser Leu Val Ser Thr Lys				
	290	295	300	
Glu Asn Gly Asn				
305				

<210> 35

<211> 335

<212> PRT

<213> *Drosophila melanogaster*

<400> 35

Glu Thr Asn Leu Met Ala Glu Gln Val Glu Glu Leu Lys Asn Cys Thr				
1	5	10	15	
Pro Tyr Leu Glu Gln Gln Tyr Lys Asn Ile Ile Gln Phe Gln Pro Lys				
	20	25	30	
Asp Ile His Ile Ala Ser Ala Met Lys Gln Val Asn Ser Ile Lys Asn				
	35	40	45	
Arg Gly Ala Ile Phe Pro Ile Glu Gly Ser Arg Val His Leu Thr Pro				
	50	55	60	
Lys Pro Gly Glu Asp Gly Ser Asp Tyr Ile Asn Ala Ser Trp Leu His				
	65	70	75	80
Gly Phe Arg Arg Leu Arg Asp Phe Ile Val Thr Gln His Pro Met Ala				
	85	90	95	
His Thr Ile Lys Asp Phe Trp Gln Met Val Trp Asp His Asn Ala Gln				
	100	105	110	
Thr Val Val Leu Leu Ser Ser Leu Asp Asp Ile Asn Phe Ala Gln Phe				
	115	120	125	
Trp Pro Asp Glu Ala Thr Pro Ile Glu Ser Asp His Tyr Arg Val Lys				
	130	135	140	
Phe Leu Asn Lys Thr Asn Lys Ser Asp Tyr Val Ser Phe Val Ile Gln				
	145	150	155	160
Ser Ile Gln Asp Asp Tyr Glu Leu Thr Val Lys Met Leu His Cys Pro				
	165	170	175	
Ser Trp Pro Glu Met Ser Asn Pro Asn Ser Ile Tyr Asp Phe Ile Val				
	180	185	190	
Asp Val His Glu Arg Cys Asn Asp Tyr Arg Asn Gly Pro Ile Val Ile				
	195	200	205	
Val Asp Arg Tyr Gly Gly Ala Gln Ala Cys Thr Phe Cys Ala Ile Ser				
	210	215	220	
Ser Leu Ala Ile Glu Met Glu Tyr Cys Ser Thr Ala Asn Val Tyr Gln				
	225	230	235	240
Tyr Ala Lys Leu Tyr His Asn Lys Arg Pro Gly Val Trp Thr Ser Ser				
	245	250	255	
Glu Asp Ile Arg Val Ile Tyr Asn Ile Leu Ser Phe Leu Pro Gly Asn				
	260	265	270	

T05090"3298660

Leu Asn Leu Leu Lys Arg Ala Ile Ser Ser Leu Ala Ile Glu Met Glu
 275 280 285
 Tyr Cys Ser Thr Ala Asn Val Tyr Gln Tyr Ala Lys Leu Tyr His Asn
 290 295 300
 Lys Arg Pro Gly Val Trp Thr Ser Ser Glu Asp Ile Arg Val Ile Tyr
 305 310 315 320
 Asn Ile Leu Ser Phe Leu Pro Gly Asn Leu Asn Leu Leu Lys Arg
 325 330 335

<210> 36
 <211> 287
 <212> PRT
 <213> Yersinia sp.

<400> 36
 Thr Asn Asp Pro Arg Tyr Leu Gln Ala Cys Gly Gly Glu Lys Ile Leu
 1 5 10 15
 Asn Arg Phe Arg Asp Ile Gln Cys Cys Arg Gln Thr Ala Val Arg Ala
 20 25 30
 Asp Asn Tyr Ile Gln Val Gly Asn Thr Arg Thr Ile Ala Cys Gln Tyr
 35 40 45
 Pro Leu Gln Ser Gln Leu Glu Ser His Phe Arg Met Leu Ala Glu Asn
 50 55 60
 Arg Thr Pro Val Leu Ala Val Leu Ala Ser Ser Ser Glu Ile Ala Asn
 65 70 75 80
 Gln Arg Phe Gly Met Pro Asp Tyr Phe Arg Gln Ser Gly Thr Tyr Gly
 85 90 95
 Ser Ile Thr Val Glu Ser Lys Met Thr Gln Gln Val Gly Leu Gly Asp
 100 105 110
 Gly Ile Asn Met Tyr Thr Leu Thr Ile Arg Glu Ala Gly Gln Lys Thr
 115 120 125
 Ile Ser Val Pro Val Val His Val Gly Asn Trp Pro Asp Gln Thr Ala
 130 135 140
 Val Ser Ser Glu Val Thr Lys Ala Leu Ala Ser Leu Val Asp Gln Thr
 145 150 155 160
 Ala Glu Thr Lys Arg Asn Met Tyr Glu Ser Lys Gly Ser Ser Ala Val
 165 170 175
 Ala Asp Asp Ser Lys Leu Arg Pro Val Ile His Cys Arg Ala Gly Val
 180 185 190
 Gly Arg Thr Ala Gln Leu Ile Gly Ala Met Cys Met Asn Asp Ser Arg
 195 200 205
 Asn Ser Gln Leu Ser Val Glu Asp Met Val Ser Gln Met Arg Val Gln
 210 215 220
 Arg Asn Gly Met Val Gln Lys Asp Glu Gln Leu Asp Val Leu Ile Lys
 225 230 235 240
 Leu Ala Glu Gly Ala Met Cys Met Asn Asp Ser Arg Asn Ser Gln Leu
 245 250 255
 Ser Val Glu Asp Met Val Ser Gln Met Arg Val Gln Arg Asn Gly Met
 260 265 270
 Val Gln Lys Asp Glu Gln Leu Asp Val Leu Ile Lys Leu Ala Glu
 275 280 285

<210> 37
 <211> 7

09788666-090501

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Fluorescently-labeled phosphopeptides derived from
 amino acids 1170-1176 of the EGF receptor
 sequence.

<221> PHOSPHORYLATION
 <222> (4)...(4)

<400> 37
 Asn Ala Glu Tyr Leu Arg Val
 1 5

<210> 38
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Preferred substrate for PTB1B, corresponding to
 residues 988-993 of human EGF receptor.

<221> PHOSPHORYLATION
 <222> (5)...(5)

<400> 38
 Asp Ala Asp Glu Tyr Leu
 1 5

<210> 39
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Substrate for PTBs synthesized from residues
 1142-1152 of human insulin receptor.

<221> PHOSPHORYLATION
 <222> (5)...(5)

<400> 39
 Thr Arg Asp Ile Tyr Glu Thr Asp Tyr Tyr Arg
 1 5 10

<210> 40
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Substrate for PTBs synthesized from residues

500-509 of p56lck, the src-like lymphocyte specific protein tyrosine kinase that is a physiological substrate for CD45.

<221> PHOSPHORYLATION

<222> (6)...(6)

<400> 40

Ala Thr Glu Gly Gln Tyr Gln Pro Gln Pro
 1 5 10

103030" 66933/60